

THE CLAIMS

What is claimed is:

1 1. An information recording system, comprising:
2 a storage medium having a plurality of adjacent tracks, each of the adjacent
3 tracks include a plurality of storage elements that are arranged substantially along each
4 respective track in substantially a regular manner; and

5 a head disposed in proximity to the storage medium and having a width that
6 substantially spans at least two adjacent tracks.

1 2. The information recording system according to claim 1, wherein the storage
2 medium is a magnetic storage medium, and the head is a magnetic head.

1 3. The information recording system according to claim 2, wherein each track is
2 located substantially in a plane within the storage medium, and
3 wherein at least one storage element is a magnetic domain storage element
4 that is substantially perpendicular to the plane in which the track in which the storage
5 element is arranged is substantially located.

1 4. The information recording system according to claim 2, wherein each track is
2 located substantially in a plane within the storage medium, and
3 wherein at least one storage element is a magnetic domain storage element

4 that is substantially parallel to the plane in which the track in which the storage element is
5 substantially located.

1 5. The information recording system according to claim 2, wherein at least a
2 portion of the magnetic storage medium is patterned.

1 6. The information recording system according to claim 2, wherein the magnetic
2 storage medium is a perpendicular magnetic storage medium.

1 7. The information recording system according to claim 2, wherein each track
2 has an associated along-track direction,
3 wherein the storage elements are further arranged substantially along first and
4 second axes, the first axis being substantially perpendicular to the second axis, and
5 wherein the first and second axes are each locally substantially 45° from the
6 respective along-track directions of the tracks.

1 8. The information recording system according to claim 7, wherein the along-
2 track direction of the tracks is a circle.

1 9. The information recording system according to claim 7, wherein the along-
2 track direction of the tracks is a spiral.

1 10. The information recording system according to claim 2, wherein each adjacent
2 track spanned by the head has a different phase.

1 11. The information recording system according to claim 2, wherein the magnetic
2 storage medium has an areal density of at least about 64 Gbit/in².

1 12. The information recording system according to claim 2, wherein the magnetic
2 storage medium has an areal density of at least about 128 Gbit/in².

1 13. The information recording system according to claim 2, wherein the magnetic
2 storage medium has an areal density of at least about 256 Gbit/in².

1 14. The information recording system according to claim 2, wherein the magnetic
2 storage medium is a magnetic disk.

1 15. The information recording system according to claim 2, wherein the magnetic
2 storage medium is a magnetic tape.

1 16. The information recording system according to claim 2, wherein the magnetic
2 storage medium is a magnetic strip.

1 17. The information recording system according to claim 2, wherein the
2 information recording system is part of a magnetic medium disk drive.

1 18. The information recording system according to claim 1, wherein the storage
2 medium is an optical storage medium, and the head is an optical head.

1 19. The information recording system according to claim 18, wherein at least a
2 portion of the optical storage medium is patterned.

1 20. The information recording system according to claim 18, wherein each track
2 has an associated along-track direction,
3 wherein the storage elements are further arranged substantially along first and
4 second axes, the first axis being substantially perpendicular to the second axis, and
5 wherein the first and second axes are each locally substantially 45° from the
6 respective along-track directions of the tracks.

1 21. The information recording system according to claim 20, wherein the along-
2 track direction of the tracks is a circle.

1 22. The information recording system according to claim 20, wherein the along-

2 track direction of the tracks is a spiral.

1 23. The information recording system according to claim 1, wherein the head
2 reads information from at least two adjacent tracks spanned by the head.

1 24. The information recording system according to claim 1, wherein the head
2 writes information to at least two adjacent tracks spanned by the head.

1 25. The information recording system according to claim 1, wherein the plurality
2 of adjacent tracks is formed by at least one spiral-shaped track.

1 26. The information recording system according to claim 1, wherein the plurality
2 of adjacent tracks is formed by a plurality of concentric tracks.